

## THE CLAIMS

What is claimed is:

- 5           1. An xDSL modem comprising:  
a hybrid circuit for interfacing the twisted pair transmission line to a receiver  
and also to a transmitter, wherein  
the hybrid circuit is provided with an adjustable termination impedance.
- 10           2. The xDSL modem of claim 1, wherein  
the adjustable termination impedance comprises a multiplexer configured to  
selectively connect at least one transformer of said hybrid circuit to at least one  
discrete component.
3. The xDSL modem of claim 2, wherein  
the adjustable termination impedance comprises a multiplexer configured to  
selectively connect a pair of transformers of said hybrid circuit to at least two discrete  
components.
4. The xDSL modem of claim 2, wherein  
the multiplexer is connected to a controller configured to provide a signal to  
cause the multiplexer to selectively connect said at least one discrete component.
- 25           5. The xDSL modem of claim 1, wherein  
the hybrid circuit comprises first and second transformers, said first  
transformer being connected to said receiver and said second transformer being  
connected to said transmitter, and wherein  
said first and second transformers are both connected to said common  
adjustable termination impedance.
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the adjustable termination impedance comprises a multiplexer configured to selectively and simultaneously connect both of said first and second transformers to at least one discrete component.

5

7. The xDSL modem of claim 6, wherein

the multiplexer is connected to a controller configured to provide a signal to cause the multiplexer to selectively and simultaneously connect both of said first and second transformers to said at least one discrete component.

8. The xDSL modem of claim 1, wherein

the adjustable termination impedance comprises at least one linear device configured to change one of a resistance, a capacitance or an inductance, in response to a variable voltage.

9. The xDSL modem of claim 8, wherein said at least one linear device

comprises one of a field effect transistor, a varactor, an a gyrator.

10. A method of operating an xDSL modem comprising:

measuring at least one property of a communication channel connected to said modem; and

changing a hybrid termination impedance based on a measurement of said at least one property.

11. The method of claim 10, comprising

determining at least one of a background noise profile of the channel, a channel loss characteristic and local echo power; and

changing a hybrid termination impedance based on a result of said determining step.

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12. The method of claim 11, wherein the hybrid termination impedance is

changed to one from a finite number of discrete hybrid termination impedance values.

13. The method of claim 12, wherein the hybrid termination impedance is changed to a hybrid termination impedance value within a predetermined continuous range.

17